Politecnico di Torino

Digital systems electronics
A.A. 2018/2019

Prof. G. Masera

Lab 10

11 june 2019

Berchialla Luca	236032
Laurasi Gjergji	238259
Mattei Andrea	233755
Lombardo Domenico Maria	233959
Wylezek Karolina	267219

1

If we put the break-point where we haven't already acquired all the count0, count1, count2 we can't get the right value because even tough the execution of the code is stopped the counter counts anyway.

The maximum detectable frequency is equal to the counter's clock frequency because we have at least to count to 1, so to increase it we can lower the prescaler value. The minimum detectable frequency in our code is equal to the counter's clock times 2^{16} which is the value of the ARR register. Actually we can further increase the maximum detectable period if we keep track of the ARR flag.
To increase the resolution of the measurement of a single period we have to increase the clock frequency by lowering the prescaler value.

2.1

image 12 -13 -11

2.2

If we double the period and halve the prescaler we still see a square wave at 100kHz, but the DC varies between 0 and 50% because now the period is doubled and but we didn't double the value at witch we turn the output off.
Since the max DC is 50% the led is less bright than before, but nothing else has changed.

2.3